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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,269	12/01/2003	Murali Basavaiah	ANDIP037	3368
22434	7590	11/14/2007		
BEYER WEAVER LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			EXAMINER UNELUS, ERNEST	
			ART UNIT 2181	PAPER NUMBER
			MAIL DATE 11/14/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

88

Office Action Summary	Application No.		Applicant(s)	
	10/726,269		BASAVAIAH ET AL.	
	Examiner		Art Unit	
	Ernest Unelus		2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

RESPONSE TO AMENDMENT

Claim rejections based on prior art

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/17/07 has been entered.

The instant application having Application No. 10/726,269 has a total of 24 preliminary amended claims pending in the application; there are 3 independent claims and 21 dependent claims, all of which are ready for examination by the examiner.

Applicant's arguments filed 10/17/2007, with respect to the rejection(s) of claim(s) 1-20 and 24-27 under Mullendore et al. (US 2003/0185154) and Beukema et al. (US pat. 6,978,300) have been fully considered and is not persuasive.

The applicant argues that, Mullendore and Beukema, the cited references, do not disclose "send a transfer ready command frame to the Host before receiving the transfer ready command from the target, wherein the transfer ready command received from the target is suppressed." And "sending a transfer ready command using the initialized RX_ID value to the host prior to receiving the transfer ready command from the target, wherein sending the transfer ready command to the host allows the switch to operate as a proxy for the target", as recited in claims 1, 24, and 27.

In regards to “send a transfer ready command frame to the initiating Host before receiving the transfer ready command from the target”, see fig. 5 and paragraph 0064 of Mullendore, which discloses “When Fast Write is disabled, RTT messages are passed transparently from target to initiator”. Clearly, fig. 5 shows XFER_RDY 128KB being sent from the switch 150 before it is received at the initiator (base on the arrow). As paragraph 0064 discloses, “RTT messages are passed transparently from target to initiator”. This XFER_RDY 128KB is shown to be coming from the target. “wherein the transfer ready command received from the target is suppressed” (see fig. 5 and paragraph 0072 of Mullendore, which discloses putting the transfer ready command to an ‘end’. The word ‘suppressed’ is being interpreted as to put and end or to come to a stop).

Mullendore fail to expressly discloses, a frame having a header with an OX_ID or RX_ID and initializing either the OX_ID or RX_ID of the write command header.

Paragraph 0018 of the applicant’s specification discloses, “As previously noted, the OX_ID field 32 and the RX_ID field 34 are each 16 bits wide and are used for identifying the originating Host and target device”.

Similarly, Beukema discloses a data packet 712 of fig. 7 having routing header 716 and transport header 718, which are use to identify a source and a destination target; in the same way that a RX_ID is used to specifies a target. See col. 10, lines 58-65. In other words, OX-ID and RX_ID are being interpreted as addresses for a source and a destination. In regards to *initializing either the OX_ID or RX_ID of the write command header*, in col. 10, lines 49-50, Beukema discloses “Routers, also modify the packet’s network header when the packet crosses a subnet boundary”. Modifying is being interpreted as to initializing. Col.

11, lines 36-38 discloses, "The network header includes routing information, such as the destination IP address and other network routing information".

The applicant has cancelled claims 21-23.

INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

INFORMATION CONCERNING DRAWINGS

Drawings

3. The applicant's drawings submitted are acceptable for examination purposes.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-20 and 24-27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mullendore et al. (US 2003/0185154) in view of Beukema et al. (US pat. 6,978,300).

6. As per claims 1, 24, and 27, Mullendore discloses an apparatus, comprising:

a port (paragraph 0027 discloses “the switch device typically includes a processor, a buffer, a first port for coupling to a low speed or TCP/IP based network link”) configured to receive a write command frame (write 16MB) defining an initiating Host (initiator 135) and a target (target 145) (see fig. 4 and paragraph 0054);

a trapping mechanism (paragraph 0046 discloses the buffer held the command within the switch) configured to trap the write command frame if the write command frame designates a predetermined Host_ID (the initiator, 135, ID) and a predetermined target_ID (the target, 145, ID) (each command within a fibre channel protocol discloses the sender and the target identity, as discloses in paragraph 0054); and

a processor (the processor within the switch, as discloses in paragraph 0027) configured to process the trapped write commands (see paragraphs 0029 and 0061, which discloses the processor within the switch is able partially transfer the write command) and send a transfer ready command frame to the initiating Host before receiving the transfer ready command from the target (see fig. 5 and paragraph 0064, which discloses “When Fast Write is disabled, RTT messages are passed transparently from target to initiator”. Clearly, fig. 5, shows XFER_RDY 128KB being sent from the switch 150 before it is received at the initiator (base on the arrow). As paragraph 0064 discloses, “RTT messages are passed transparently from target to initiator”. This XFER_RDY 128KB is shown to be coming

from the target), wherein the transfer ready command received from the target is suppressed (see fig. 5 and paragraph 0072, which discloses putting the transfer ready command to an 'end'. The word 'suppressed' is being interpreted as to put and end or to come to a stop).

but fails to disclose expressly a frame having a header with an OX_ID or RX_ID and initializing either the OX_ID or RX_ID of the write command header.

Paragraph 0018 of the applicant's specification discloses "As previously noted, the OX_ID field 32 and the RX_ID field 34 are each 16 bits wide and are used for identifying the originating Host and target device".

Similarly, Beukema discloses a data packet 712 of fig. 7 having routing header 716 and transport header 718, which are use to identify a source and a destination target; in the same way that a RX_ID is used to specifies a target. See col. 10, lines 58-65. In other words, OX-ID and RX_ID are being interpreted as addresses for a source and a destination. In regards to *initializing either the OX_ID or RX_ID of the write command header*, in col. 10, lines 49-50, Beukema discloses "Routers, also modify the packet's network header when the packet crosses a subnet boundary". Modifying is being interpreted as to initializing. Col. 11, lines 36-38 discloses, "The network header includes routing information, such as the destination IP address and other network routing information".

Mullendore et al. (US 2003/0185154) and Beukema et al. (US pat. 6,978,300) are analogous art because they are from the same field of endeavor of packet switching in a wide area network (WAN) and/or local area network (LAN).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify a congestion management systems and methods are provided to overcome

head-of-line blocking issues resulting from slower-speed network links, such as low speed WAN links or links using a TCP/IP based storage protocol as described by Mullendore and a mechanism by which modifications to components of the network fabric may be made without tearing down existing connections as taught by Beukema.

The motivation for doing so would have been because Beukema teaches, **“The method and apparatus provide a mechanism by which modifications to components of the network fabric may be made without tearing down existing connections. The apparatus and method facilitate such fabric management by placing send queues in a send queue drain state and suspending the send queues affected by changes to the network fabric while the modifications are being made. Once the modifications are complete, the send queues are place back into an operational state”** (see col. 2, lines 31-38).

Therefore, it would have been obvious to combine Beukema et al. (US pat. 6,978,300) with Mullendore et al. (US 2003/0185154) for the benefit of creating the apparatus to obtain the invention as specified in claim 1.

7. As per **claim 2**, the combination of Mullendore and Beukema discloses “the apparatus of claim 1” [See rejection to claim 1 above], Mullendore further discloses, “wherein the Switch (150) is an initiating Switch coupled to the Host (135) in a first SAN (165) (see fig. 4).

8. As per **claim 3**, the combination of Mullendore and Beukema discloses “the apparatus of claim 2” [See rejection to claim 2 above], “wherein the processor of the initiating Switch (165) is further configured to modify the write command before forwarding the write command to the

target (145) (paragraphs 0029 and 0061 of Mullendore, discloses the processor within the switch, and paragraph 0077 discloses the switch being a router. Col. 10, lines 49-50, of Beukema discloses “Routers, also modify the packet's network header when the packet crosses a subnet boundary”).

9. As per claims 4, 8, and 15, the combination of Mullendore and Beukema discloses “the apparatus of claim 3” [See rejection to claim 3 above], “wherein the initiating Switch (150) is further configured to modify the write command (write 16MB) by modifying the OX_ID value for the write command before forwarding the write command to the target (Paragraph 0018 of the applicant's specification discloses “As previously noted, the OX_ID field 32 and the RX_ID field 34 are each 16 bits wide and are used for identifying the originating Host and target device”. Similarly, Beukema discloses a data packet 712 of fig. 7 having routing header 716 and transport header 718, which are use to identify a source and a destination target; in the same way that a RX_ID is used to specifies a target. See col. 10, lines 58-65. In other words, OX-ID and RX_ID are being interpreted as addresses for a source and a destination. In regards to *modifying either the OX_ID or RX_ID of the write command header*, in col. 10, lines 49-50, Beukema discloses “Routers, also modify the packet's network header when the packet crosses a subnet boundary”. Col. 11, lines 36-38 discloses, “The network header includes routing information, such as the destination IP address and other network routing information”).

10. As per claim 5, the combination of Mullendore and Beukema discloses “the apparatus of claim 4” [See rejection to claim 4 above], “wherein the initiating Switch (150) uses the

initialized RX_ID value as a handle for accessing information pertaining to the write command session in a sessions ID table (see **claim 4 above and col. 14, lines 6-20 of Beukema**).

11. As per **claim 6**, the combination of Mullendore and Beukema discloses “the apparatus of claim 4” [See rejection to claim 4 above], Mullendore discloses “wherein the processor of the initiating Switch (135) is further configured to issue a Transfer Ready command (**XFER_RDY 256KB**) to the Host (135) (see fig. 4).

12. As per **claim 7**, the combination of Mullendore and Beukema discloses “the apparatus of claim 5” [See rejection to claim 5 above], “wherein the initiating Switch (150) is further configured to initialize and use the initialized RX_ID value for all communication related to the write frame (16MB) between the initiating Switch (150) and the Host (135) (see paragraph 0061 and fig. 4 of Mullendore and 10, lines 49-65 of Beukema).

13. As per **claim 9**, the combination of Mullendore and Beukema discloses “the apparatus of claim 2” [See rejection to claim 2 above], Mullendore discloses, “wherein the initiating Switch (150) is further configured to transfer additional data frames (256KB) (paragraph 0061 discloses that the switch separate the command into smaller portions and send those portions (256KB) separately to the target) to the target (145) when the initiating Switch (150) receives a Transfer Ready command (**XFER_RDY 256KB**) associated with the write frame (write 16MB) from the target (see fig. 4).

14. As per **claim 10**, the combination of Mullendore and Beukema discloses “the apparatus of claim 1” [See rejection to claim 1 above], Mullendore discloses, “wherein the Switch (140) is a target Switch coupled to the target (145) (see fig. 4).

15. As per **claim 11**, the combination of Mullendore and Beukema discloses “the apparatus of claim 10” [See rejection to claim 10 above], Mullendore discloses, “wherein the target Switch (140) forwards the write command (16MB) to the target (145) (see fig. 4).

16. As per **claims 12 and 25**, the combination of Mullendore and Beukema discloses “the apparatus of claim 10” [See rejection to claim 10 above], Mullendore discloses, “wherein the target Switch (140) forwards data frames (128KB) associated with the write command (16MB) to the target (145) after receiving a Transfer Ready command (XFER_RDY 128KB) from the target (145) (see fig. 4).

17. As per **claim 13**, the combination of Mullendore and Beukema discloses “the apparatus of claim 12” [See rejection to claim 12 above], Mullendore discloses, “wherein the target Switch (140) is further configured to buffer the data frames (128KB) prior to receipt of the Transfer Ready command (XFER_RDY 128KB) see paragraph 0061 and fig. 4.

18. As per **claim 14**, the combination of Mullendore and Beukema discloses “the apparatus of claim 12” [See rejection to claim 12 above], “wherein target Switch (140) is further configured to maintain (the buffer inside the switch having a identified data) a sessions ID table and to use the OX_ID of the write command as an index to the session corresponding to the

write command (see paragraphs 0054 and 0061 of Mullendore and col. 14, lines 6-20 of **Beukema**).

19. As per **claim 16**, the combination of Mullendore and Beukema discloses “the apparatus of claim 5” [See rejection to claim 5 above], wherein the target Switch (140) is further configured to modify the OX_ID value with communications between the target Switch (140) and the target (145) (see paragraphs 0029 and 0061 of Mullendore and col. 10, lines 58-65 and Col. 11, lines 36-38 of **Beukema**).

20. As per **claim 17**, the combination of Mullendore and Beukema discloses “the apparatus of claim 1” [See rejection to claim 1 above], wherein the Switch is further configured to use the RX_ID value of trapped write commands to specify the amount of buffer space needed for the write command and use the write command frame to request the needed buffer space (see **paragraph 0061 of Mullendore and fig. 7 of Beukema**).

21. As per **claims 18 and 26**, the combination of Mullendore and Beukema discloses “the apparatus of claim 17” [See rejection to claim 17 above], wherein the Switch (150) is further configured to use the RX_ID value of trapped write commands (**write 16MB**) to specify the amount of buffer space larger than needed for the write command and use the additional buffer space for subsequent write commands so that the Switch need not wait for a Transfer Ready command to transfer data related to the subsequent write command (see **paragraph 0061 and col. 10, lines 58-65 and Col. 11, lines 36-38 of Beukema**).

22. As per **claim 19**, the combination of Mullendore and Beukema discloses “the apparatus of claim 1” [See rejection to claim 1 above], Mullendore discloses, “wherein the Switch (150) is further configured to, in the event the Switch does not have sufficient buffer space for the write command (**write 16MB**) (see paragraph 0064), to either: (i) generate a busy status signal to the initiating Host; (ii) placing the write command on a pending wait list (**paragraph 0064 discloses, “then switch 150 holds the RTT message until buffer resources become sufficient to receive the entire write data specified by the RTT message ”**) ; or (iii) forwarding the write command to the target (see paragraph 0070).

23. As per **claim 20**, the combination of Mullendore and Beukema discloses “the apparatus of claim 1” [See rejection to claim 1 above], Mullendore discloses, “wherein a first SAN (360) including the Switch (**switch A or B**); a second SAN (365) including a second Switch (**switch C or D**); and an inter-SAN network (310) connecting the first SAN and the second SAN (see fig. 13).

RELEVANT ART CITED BY THE EXAMINER

24. The following prior art made of record and not relied upon is cited to establish the level of skill in the applicant’s art and those arts considered reasonably pertinent to applicant’s disclosure. See MPEP 707.05(c).

A great example of a switch in a SAN using Fibre Channel header to modifying a Receiver Exchange Identifier (responder identifier) is clearly shown by “Fibre Channel – Fabric Generic Requirements (FC-FG)”; see section 5.3 on page 13.

Art Unit: 2181

U.S. PATENT NUMBER

US 2004/0057389

US 6,986,015

US 2005/0076113

CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

25. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. 707.07(i):

a(1) CLAIMS REJECTED IN THE APPLICATION

26. Per the instant office action, claims 1-20 and 24-27 have received a first action on the merits and are subject of a first action non-final.

DIRECTION OF FUTURE CORRESPONDENCES

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is (571) 272-8596. The examiner can normally be reached on Monday to Friday 9:00 AM to 5:00 PM.


IMPORTANT NOTE

28. If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Alford Kindred, can be reached at the following telephone number: Area Code (571) 272-4037.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217- 91 97 (toll-free).

November 06, 2007

Ernest Unelus
Patent Examiner
Art Unit 2181


ALFORD KINDRED
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